Entomology

No. 4.

Papiliones

Phalaenae

&

Sphinges

6

Papilio of the Thistle This is a very beautiful butterfly
the wings are the upper side being ~~of a black~~ beautifully
marbled or spotted with a carnation or flesh color and black red. near the tips
of the upper wings there is a short white band & near the apex of the adjoining outer
upper wing there is a large round white spot with two smaller ones and a
white lunule - the upper surface of the lower wings is mottled with
~~red white spots~~ has a broad yellowish red band. with three rows
of black ~~round~~ spots those of the intermediate row being compound
from ~~five~~ — the antennae are rather long — & the ends of them
tipt with yellow; there is a very deep or bold channel next the
abdomen in the under wings and the margin of the channel covered
with long downy hairs — eyes of a beautiful brown —
breast under side of it white. The under side of the upper
wings is beautifully marbled with large rose red spots intermixed with black
white & pale brown & the under surface of the under wings is white &
each & eye like spots or rings and are covered with numerous spots
of dark grey & pale brown — the intermediate eye like spots are
smaller than the outer ones and have each a small blue lunule
with two blue spots on a black spot at the inner apex. — abdomen breast
legs and borders white — length between the tips of the expanded
wings near three inches —

Papilio of the Milkweed

The color of the upper surface of the wings of this species is of a dark orange rather lighter on the lower wings the nerves being marked with black on the nerves; and a broad black band on the ~~outer~~ rib also at the base of the wings and outer margin: on the band of the outer margin there is a double row of ~~spots~~ dots generally whitish part of them however are yellowish or pale orange as are several larger spots towards the apex of the upper wings — on the ~~out~~ of the upper wings there are three lengthened white dots the last of which or nearest the apex is a double one —

the under surface of the upper wings is more inclined to ochre yellow. the under surface of the lower wings is of a pale ochree yellow or buff the nerves being covered with strong black lines or bands. ~~there~~ is also a double row of white spots on the exterior margin of both upper & lower wings the head & thorax which is black is covered with numerous white spots the eyes are rather small & brown — brush antennae legs & spiral tongue black abdomen black brown with lateral white bands & another band under the abdomen length between the apex of the fore wings 4 inches —

Papilio of the Hop.

Papilio J.

Genus.
Equites.
Div. Trojani

This is J a beautiful black & J a silky lustre eyes brown. with 4 small yellow dots behind the eyes. It has 4 rows each J 8 round small yellow spots; the upper wings have a row. J. round or rather somewhat kidney shaped spots J a bright buff color. each spot placed between the nerves near the outer margin. at some distance from this is another row. J somewhat triangular shaped buff colored spots; through the middle of the under wings passes a band composed J large buff spots and next to the outer margin there is a row J large buff lunules with an eye like spot at the inner edge. the lower half of which is buff & the upper vermilion over which is placed a sky blue lunule with two faintly marked blue lunules next to it — both the deeper & lower wings are much emarginated. with narrow lunules in the scollops tails black — the marking J the under side correspond to the upper. with this difference in the color that the in Tawny & Color. inner row J the upper wings are being J a deep orange: as. are also the spots eye like spots & lunules J the lower wings with the exception J the two lunules between the eye spots & the tails, and the emarginated lunules J the J the outer edges J the wings beside the sky blue lunules there are several indistinct formed blue spots between the rows J. spots & the lunules — Length J the insects between the tips J the upper wings near 4 1/2 inches —

Papilio J.

This species J a brownish black with a single row
J round pale greenish yellow spots along the outer margin.
Equites Trojan. the upper wings have a large round orange spot adjoining the
base J the upper wings — with 4 lunules and 2 nearly round spots
J a pale pea green colour — and a lunuled part green part orange at the inner edge a
apex J upper & lower wings emarginated the emarginations edged
with white — an azure vitta lacteal or cloud J azure minute
points above the marginal lunules — The eyes are brown
with two yellow palpi with six minute yellow dots back
J the eyes; with minute lateral spots on the abdomen & thorax: tails moderately long.

The under side is somewhat J a paler brown near the tips
and J a violet black towards the base with the pale
marginal row J spots and an inner row J 4 or 5 triangular
spots J the same color — and a yellow spot in the inner
the upper part J the under surface J the under
lower wings is brownish lower part brown black with a
double rows J orange marginal and inner and marginal large orange spots —
length between the tips J the upper wings — 4 inches —

Equites ?
Troyan

Papilio d.

This is of a beautiful rich clove brown color with a white broad band through the center or across the upper wings and continued across the lower ones, so as to form when the raised wings are expanded a large heart shaped figure ~~+ in which near the outer rib of the upper wings~~ with these are a small white spot on each side; with white spots near the apex of the upper wings and a row of sky blue lunules on the lower at the base of each of which there is a round orange red spot and a double marginal row of narrow blue lunules. the emarginate edge of both upper & lower wings is edged with white; eyes cinnamon brown — antennae long and not abruptly clubbed — The under side has a similar broad white band. and but the color is light brown marbled with cinnamon & dove colors. white & black; the upper & lower wings have the marginal double row of pale yellowish blue narrow lunules and a row of broad cinnamon colored lunules (above them) less distinctly defined however on the upper wing (*); lower part of abdomen thighs & breasts cinereous — (*with three cinamon colored spots near the root of the lower wings) without tails length between the tips of the upper wings near 3 1/2 inches

Papilio — This is of a beautiful buff color with a broad glossy black marginal band. on both upper & lower wings: ~~on which~~ on the band of the upper wings there are seven eight narrow oval buff spots — with 3 lengthened marginal buff spots on the lower wings, a buff lunule above the tails; a black eye like spot in the lower part of the inner edge in which spot there is a blue lunule and an orange red spot beneath it: and a small orange spot below it and another orange spot at the upper part of the outer edge; from the rib of the upper wings 4 broad black bands extend 3 of which one third ~~partly~~ across them & the inner one clear across: a narrow transverse line extends from the upper edge of the lower wings accompanied by a short black lateral streak near the blue lunule the inner edge of the wings has a broad black band and is covered with buff hairs there is no abdominal cavity in the wings — body black, eyes black brown thorax with lateral buff hairs — abdomen with a lateral broad buff band — breast & sides of the thorax with buff hairs with brown black thighs & legs — & spiral tongue — under part of the ~~&~~ antennae club of the whitish & the markings of the under side correspond to the upper except that the marginal spots are larger and the inner part of the band paler. the same may be said of the lower ones with the exception of two silver and spots of cinnamon color lunule, near the eye spot and an indistinct narrow silvery line extending from it parallel to the margin which is, along side of black as well as the upper wings ~~emarginated~~ and edged with buff — tailed — length between the tips of the upper wings near 4 1/2 inches male or other sex 1/3 less in size — found on moist clay or mud in the roads in clusters & swarms in numbers. —

Equites Greek Achivi.

the butterfly comes out of pupa May 29.

Papilio

They are found in numbers in fields where the thistle is in blossom from which they may then be easily taken between the thumb & finger and but not they may be easily taken by gently closing the thumb & fore finger on each side thereof. The female or largest size is of a nutmeg brown with a row of fawn colored spots on each wing with a broad buff or orange marginal band on upper & lower wings with dark brown (irregular) bands on the upper wings with an outer marginal line from which spring a row of brown lunules surmounted by a row of round brown spots. on the lower wings there is a marginal narrow brown line a row of brown lunules another row of smaller round brown spots and several irregularly placed brown lunules towards the root — an abdominal channel edged with brown hair. the under side is pale yellow brown the marking of the upper wings corresponds to its reverse side. but the lower wings have three rows of broad silver spots with a narrow edging on one side of black with several similar silver spots near the root — the color of the male is lighter or with more of the orange on the upper surface of the wings, and the brown markings are more distinct; antennae long and orange brown. the club abrupt, short, & dark brown — distance between the tips of the upper wings in the female 3 1/2 inches. in the male little more than 2 1/2 inches.

Papilio Ajax

generally found on the St Johns

is dark orange yellow. with a double row of marginal brown

on the upper & lower wings with several broad somewhat

black brown bands. on both — on the under side, of the upper wing

pretty nearly to the reverse - but the that of the lower is

the dark brown marking & it is more of a red brown

than the upper one. distance between the tips of the upper wing

2 inches - antennae yellow brown long abruptly terminates in

a knob. —

flattened -

Sphinx

long. — between the tips —

Aug 10
1821.

The superior wings are dark & finely marbled
the inferior have three irregular transverse bars, and
are of a fine lake red root — these are of lateral
black bars on each side the intermediate spaces being of a
beautiful lake color. — down the back is a broad grey
band or stripe — under side of the abdomen three
is white with — black dots underneath
the abdomen — the sucker which is rolled up
like the spring of a watch is when extended in
drawing the nectar from the flowers 4½ to 5 inches
long — the sphinx are found at late as 10 o'Clock
hovering over flowers — Aug 16.
they avoid the light strong moon light —

757 Larva 2 inches long fore part bent back when at rest
1821 This is found on the Acacia it is of a lilac color on the
Sep 20 back and sides. with a yellow red band from the
head to the vent; the underpart of the abdomen & pale
feet is of a muddy green — there is an interupted line
down the back! and a glossy eye like spot over the
vent — the real feet are yellow and the head brown
yellow — there are 3 interupted lateral black lines

of Phryganea

Sep 20 1821 758 Cocoon of found on the oak — Coy

The head & thorax is of dark brown & apparently horny
the antennae short — The cocoon is formed by the case or
a case over & strongly cemented together with silk
protudes nearly its whole length out of the case which is
open at both ends — and sencles about
In the month of Novembe it passes to the pupa st

Phryganea Quercifolia

759
Sep 30
1821

Larva of. 2 inches long found on the narrow leaved dock head feet bright & supporters and underside reddish yellow with 4 yellow lines from the anus to the back end with a deep black & two broad & two short lines — black dots in irregular lines

760.
Sep 30
1821

Larva of Sphinx 4 inches long when full grown

head, feet and horn terra sienna yellow with a large oval collar like spot on the first annulation next the head — the back of the worm is black or greenish black with a fine interrupted line down the back with a row of yellow spots (one on each annulation on each side of the back line) with numerous intervening minute pale green dots. on each side

the lower part is of a pale green with irregular black streaks with a small red anal spot on each annulation — the real and false feet are of a cane or yellow color —

feeds on the narrow leaved dock —

761
Sep 30.

Larva of — near 3 inches long & pretty thick.

color black — feeds or rather will eat the filbert and hazle — It has several rows of tit like protuberances from which arise a crown or tuft of bristles — found travelling about at night on touching it it curls up in a heap —

Pampyris. see page 118 briefly. Boston Medical & Physical Journal. 1st Supplem.

Halteres sinistri name for balancers or poisers in the Diptera

Cicada Septendecim of Linnaeus.
Tettigonia do. of Fabricius

Lin "Systema Naturae" Cicada Septendecim, nigro-virescens, elytris margine flavescente, capite utrinque octo-striato Tom I pars II p 708—

Tettigonia Tibicen of Fab in the one whose male commences its shrill & loud note in the neighborhood of Phila about the ~~middle of July~~ commencement of July — —

Tettigonia Pini appears annually but few in numbers

Works on Entomology.

get this Klug. quarto with fine engravings on the genus Sirex.
Kirby's Entomology

Fabricius Systema Rhyngotorum, secundum ordines, genera, species adjectis synonimis, locis, observationibus, descriptionibus; Brunsvigae 1803. 8.vo in one vol.

Fabricius, Systema Piezatorum: secundum ordines, genera species &c &c Brunsvigae 1804 in one vol.

see above Klug's Monographia Siricum Germaniae 4to 3½ dollars
Panzer's German Insects

Formica (head somewhat triangular, antennæ inserted in the middle of character of genus)

Formica ? Atrata ?

~~In the~~ About newyear 1822 on splitting up a decayed oak some 4 or 5000 of this species were found in the dotty heart of the wood (heaped up in irregular cavities) — the neuters were from the size of .3/10 ~~5/10~~ & even 6/10 long. — the males it is thought do not remain over winter but die after copulation — the females were of the length of .7/10 and including the wings 9/10 long. these last were in the proportion of 5 to the 100 — Color black of all of them the wings transparent but of a yellow brown or ferruginous tinge (but the upper part of the abdomen is of slightly tinge with 3 polished black bands across it)

They were all of them in a torpid state — some of the neuters began gradually to move their limbs on the exposure to the sun & air — upon being brought into the warm temperature of a room they still exhibited the appearance of being intoxicated they staggered about — but did not wander for 24 hours from the spot. and during two days they retained did not recover their usual activity none of those with wings and many of the neuters showed the least sign of life — In general their return from the torpid state is very gradual some of them exhibited in a warm room for many hours no sign of life.

stuffed in the torpid state in spirits of wine they did not tincture it —

Cicada Septendecim

Cicada Septendecim — nigro virescens, elytris margine flavescente, capite utrinque octo-striato
Lin. Systema Naturae Tom I pars II p. 708

Tettigonia Septendecim of Fabricius —

Described by Kalm.
do by Collinson London Philosophical Transactions Vol 54 N°10 —

Habitat à Canada ad. Carolinam

Popular — Description of the Male —

both the male & femal have the eyes red.

length from the head to the tip of the wings 1 3/4 inch.
of the abdomen nearly 3/4 inch
head thorax & back of the abdomen of a bister brown color light
and more yellow underneath — eyes red — legs yellowish red —
the abdominal segments have each a
reddish yellow band —
the wings are hyaline with a broad
orange rib above — the nerves are also orange colored & strongly marked
near the root — Description of the female.

length 2 2 3/4 inch — of the abdomen 1 inch — the abdomen of
the female is considerably larger in every part and
in color — both male & femal are provided with a sucker

She is armed with a spear like instrument —
which is from the upper or inferior part of the abdomen it is
partly enclosed in a sheath & when not in use drawn up close
to the abdomen this spear like is finely serrated; it is divided longitudinally
and each side seem to move alternately back & forwards as if on a groove —

The sucker with the instrument

My personal observations ~~which I have made~~
relating to these insects were made in 1817 near Bethlehem in Pa.

Shortly after the frost was out of the ground
in the woods, which was about 10 days later
than in the cultivated parts of the country I observed
great many
a vast number of holes about an half inch in diameter
under almost every oak tree in the woods. in
many places I counted not less than 60 such holes,
in the space of a square yard — they were
in almost every instance covered with a small
dome or cap of earth formed by the moist earth having
been raised by the insect two days before this the rain had
fallen through the woods and had hardened this
upon the tops of these five inch cap a hole 1/2 inch diameter
was count. those holes upon probing them probed by a delicate flexible
twig did not appear to be above 8 or 10 inch deep

but no certainty of their depth could they be obtained
as they appeared to be very crooked probably owing
to various obstructions of stones roots &c met by the larva
in its course — it was nearly 3 weeks after
this before a single locust was seen — I am
induced from this to infer that that this
insect lives 17 year in the larva state
before it attains its full size that about
that then in the early part of the spring or
about the part of April it ascends to
the surface and having prepared a passage of itself in its
pupa state again descends some distance & there
undergoes the transportation into the pupa state —
in this state it remains (probably) 2 or 3 weeks —
when they finally if they leave it subterranean habitation under
cover of the night — and ascending (by some means to the roots of
the tree it may chance to meet with from 3 to 10 feet in height) firmly
attach themselves to the bark in a few hours
the external case is sufficiently dried when the insect bursts
it open on the back and in the course of another
hour entirely extricates itself from its external envelope
by 8 or 9 o'clock they have all escaped except
here & there a solitary one which caught in
this situation in the heat of the sun or enfeebled
by exertion, unable to burst its case had perished
within it ——— upon having the case they remain
but a short distance & remain without making
any exertion. their wings gradually become flaccid
and after making a few feeble efforts with the
they flutter off to join them flutter a little about
but it was not until nearly 24 hours thereafter
acquired the full use of their wings ———
Three or 4 days after this they began to be
heard. but it was not until a and it
a week or 10 day afterward became very noisy

The continued ~~this~~ to be very dowdy for a month
or ~~more~~ longer when their noise gradually
declined and in a week more only a solitary
one was ~~heard~~ here & there heard — the whole
time from ~~the~~ their ~~first~~ appearance is about 2 months
during this time the propagation of the species takes
place the female deposits its eggs into the
crevices with her ovipositor like instrument
or pith generally in the last year growth
heart of the young twigs of the oak chestnut &
these shortly after die from ~~upward~~ upward from the
place where the eggs are deposited — and so deep
is the wound that the first high wind breaks
them off shortly after they have fulfilled this purpose
if natural they die & the earth becomes covered
with their remains. afords food for squirrels
hogs & poultry
and numerous insects —

The eggs are of a flatten elongated & cylindrical form about
1/10 of an inch in length — and are placed lapping on
one another in 2 parralle rows of chambers each
containing 10 or 12 eggs each opposite chamber convex
towards each other at one end the <<<<<

On examining these eggs about the middle of September
they will be found to have increased in size to 1/6 of an
inch ~~[illegible]~~ and with the aid of a
glass the rudiments of the larvae maggot is perceptible
they are at first of a milk white color but as more & yellow color than
after this the eggs are hatched — after which
their history becomes involved in uncertainty — the
worm probably crawls out drops on the earth
perhaps feeds on the roots of vegetables — which
is more probable than that it descend to the
depth of 10 15 & even 20 feet. as many persons assert
note I think great ingenuity for the purpose of the Entomologist but have to obtain
the note of the male is produced by an organ
near the base

The note of the female is very resemble a short
gives a few slight [illegible] notes with the wings — agreeing to body

In found it resembles the loud utterance of the word Pha-a-ah the first part of the word continued for sometime and abruptly & loudly terminated with the last syllable

Their numbers at the periods of the great flights almost exceed belief. from morning until night the fields & woods resound with one continued din like that near a great number of beehives but much louder. whilst the person is as much incommoded by them as the ears by their noise they fly in the face get into the bosom strike the hands — and annoy animals as well as man

Periodical appearance of the Locusts

1803. May At Raleigh N.C & in the middle & western parts of that state and the Virginia State adjoining exactly 14 years previous they had appeared in the same number —

1817. In Pennsylvania East of the Allegheny Mountain in immense numbers — they had appeared in the same numbers in 1783. & in 1806. & will probably make their appearance again in 1834 — the great flight extended over equal districts on

1821. They appeared in Luzerne in small numbers. the progeny of this flight will probably return in 1838 —

1816 In the neighborhood of Northumberland Court House they appeared in a district confined to space of about 5 miles square but their numbers exceeded all belief — a cow bell could not be heard 200 yards off,

1792 at Elizabeth town New Jersey when their regular appearance was well attested in 1775 1758 & 1741

They are eaten by the indians ?

Fortunately they are rather an harmless insect than otherwise the little damage they do is much exagerated occasionaly young fruit apple trees are injured but the larger fruit trees suffer little injury the young twigs only suffering — if they were furnished with jaws like the grille they would be a very formidable creature however

thought numerous on fields of grain they do no injury whatever to it

The timid & the superstitious see in this number & the fancied resemblance to the VV on their wings the apron of war. but were they to take the pains to examine they would find the same mark on the wings in the C Pini & Jeben who are both annual visitors & the latter much more noisy but not being so formidable numerous — as the Specias of butterflies we are acquainted whose history we have given —

Phalaena

Phalaena Quercus? female

This species var the perfect specimen female is of a yellowish cinnamon color. with a small round white spot near the center on the outer marginal half of the upper wings from the point or apex of the wings transversely. is of a dark pinky flesh color with numerous olive clouded specks. the antennæ are narrow & small — a pale festoon line passes through the middle of the lower wings (eyes brown black) the under side corresponds to the upper and the lower wing is dotted with specks which the reverse or upper side is destitute. Donovan in his British Insects Vol III plate 104 has figured both sexes male & female of Phalaena Quercus his female resembles in color & size nearly this specimen it has also the white round spot in the upper wings (on the upper pair) but it differs in the form of the divisional line between the cinnamon & flesh color (which in his is pale & common about half way on the outer side) is this the same or a variety —

length between the tips of the upper wings 2 3/4 inches

with dark flesh or pink near the root of the upper wing.

Phalaena Neustria inhabits apple orchards

The female of this species is of a pale cinnamon brown or drab with two parallel transverse pale lines across the upper wings eyes brown and 1 & 3/4 inch between the tips of the upper wings the male is 1/3 less. colour a shade darker. they both differ much in the shade of color some specimens being much darker than others in some the band across the wings is very pale in others very dark some have the color darkest at the root of the upper wing: whilst in others it is very pale in some specimens they are nearly of an uniform pale tint the two lines forming the band on the upper wings being very indistinct they lay live in societies in large nests and are very destructive to the apple trees they may however be effectually destroyed by discharging into their nests a pistol or gun loaded mostly with powder. ——

Vol 3 pl. 95. Donovan in his British Insects has figured this species together with the eggs larva and pupa but the silk of the cone is brown and the shape of color and represented as spun on the leaf of a plant —— the spun with us never spins on a leaf. but always seek the most retired dark corner it can find generally under ports, fences or in some deep or hole part of the tree: its silk is white & of a mealy appearance and possibly might answer a useful purpose if manufactured it is a hardy insect and might be raised with infinitely less trouble than the Phalaena Morus. it is described by Donovan as feeding on the thorn with us it prefers the apple I have not with never seen them on the former tree any other kind spun of the Crataegi

Cicada 1821

1821
June 11 Obtained 2 females much resembling if not completely
to those of the Septendecim — the eyes were of a bright
or vermillion red. the ribs of the wings of a deep yellow appreaching
to orange — they are in some numbers but nothing like to the
hosts which appeared about 4 years ago. — the note of the
abruptly
males too, though terminating, like that of the Septendecim seems
much weaker — it is about a week or 10 days since the
first males this appearance

June 17 The Locust become more noisy — between Mill Creek &
Wilkesburn I picked up from 6 to 12 or 15 cases under most of
the trees and many Locusts which appeared to have been beat
down in this feeble state on just emerging from the cases by
the late heavy rain — The note or rather noise made
by the Septendecim resembles the sound of Pha-ah-ah-ah-o.
eyes of this species are of a vermelion red (prominent order of a bobbin snail
eyes, this is a generic character) rib of the wings bright
orange abdomen with orange band round the edge of each
annulation rest of the color blackish brown male nearly 1/3
larger than the female length of the body of the male
length of that of the female & from
tip to tip of the superior wings of both from to —

It is 4 years since they appeared in such number
in the county — Query. What is the cause of this irregular
appearance 17 years being the period generally allowed by observers
or naturalists for their reappearance

the female have an instrument nearly pistol in light for piercing
the twigs in which they lay the eggs

June 19. found two in coitu.

June 28 begin to disappear but little a solitary one or so being
heard in the woods —

2½ inches long

June 17 1821 Obtained the skin of a pupa apparently of a large Sphinx
larva of which is an internal feeder of the oak from
the center of a large oak it had proceeded. it
had merely protruded the head and fore feet out of the
hole ◯ of nearly half inch diameter or 4/10 or 3/8.

1821.
July 7 700. found male & female of a species of Asilus or Empis in
coitu pale thorax yellow & hairy the thorax of the other sex saddle
& darker-yellow one sex nearly ½ less than the other the 5th
on the two annulation next the apex (legs black)
one without any yellow hairs on the back of the abdomen &
eyes black brown below to order Diptera and the wings shut in the
manner of a pair of scissors.

1821
701 ~~July~~ June 19 Cicada 2/10 of an inch long. of a bright or yellow green pea green color: eyes pale brown. thorax continued — is a cover the whole length of the abdomen, and terminates in a lanceolate or sharp point — found several this day specimens of the female pale brown. —

1821
~~July~~ June 19 Three female of Phalaena (Comet) were sent me to day:

1821.
~~July~~ June 21. Asilus rather more than 1 inch long — chestnut brown color. / 4 orange or dark cromic yellow bands
702 across the back of the abdomen, with 2 pale yellow bands or streaks on each side of thorax — eyes brown with a yellow line back or behind them — feelers 1/4 of an inch long, kneed in the middle the last joint or termination thickened — legs pale yellow brown abdomen underneath with 4 or 5 yellow bands or lengthened spots. balancers small approaching to white. wings rather dark with — legs redder than in the drawing balancers on a short thread bulb. pale yellow approaching to white — found on fences —

1821
703 July 22 Crimex 2 1/2/10 long. form short & thick color black with a scarlet or vermilion red line* across the front of the thorax and two red spots on the tip of the horny wing cases — with a white or yellowish white margin to the thorax & horny wing cases found several on the seed vessels of the common blue garden Columbine they had eaten into most of the seed vessels. on handling them a very strong smell exactly resembling the Cucumber — the transparent wings are of a leaden color with a metallic appearance & bright in color — differing much a little in size. (the males)
It is singular that almost every species of bug has its peculiar smell — some resembling the scent of the strawberry, some very fragrant & others again highly offensive —
found this day & male & female their eggs also which are ~~of a cream~~ are of a reddish yellow. & rather large for so small few in number. Parent insect several young ones not much bigger than the eggs were hatched & crawling over the eggs.

* the red line and spots in some specimens are of an orange yellow.

704
June 22
1821

Curculio sr. 2½. long color or red ochre red brown
situated on the snout 16 2/3 from the end. eyes small
abdomen eyes snout antennae & legs black brown
preys on the flowers or inhabits the flower of the Rose
under the glass the elytra have interrupted longitudinal lines or sutures
June 27 found them in coitu male & female about one size or nearly so
in the rose of the garden eats round holes in the leaves of the
rose of this size ○

705

Larva sp. 2½ inches long ash colored speckled with dirty
June 22 green lateral spots and two darker interrupted bands on
the back running from the head to the vent — with a remarkable
short tail pale flesh colored on the back over the 8th annulation from the head &
the 4 or 5 from the vent — abdomen flat with a large
black spot under each of the 7 first annulets from the head and pink spots
under each of the other — In moving it raises that part of
the body between the real feet and the false like the larvae
of the Geometrae — Is very sensitive when touched
twisting violently from side to side

706
June 22
1821

1 inch from tips to tips of a pearly brownish white color
with two black spots on the rib of each superior wing — eyes brown

figured twice the natural size

707.
June 25
1821

figured much larger than life.

Water Bug Nepa? (linearis C.) 1 inch & 5/10 long. slender shaped with a tail as long as the fore legs. color dirty olive eyes projecting on each side of the head claws of the fore feet very long & somewhat curved or hooked legs long & slender (boys call them weavers). lived under water several days - inhabits the Susquehanna & other rivers eyes brown prominent with a white ring round them — color lived a week without food in a tumbler of water -

708
June 20
1821

6/10 to 6/10 long. thorax head antennae clove brown upper surface of the abdomen marked with 4 indented very broad bright cane or yellow bands. under side with 3 cane colored narrow spots on each side. — antennae 12 jointed & uniform thickness and inserted in the middle of the face 4 hind shanks & tarsi with whitish hairs on wings pale red or yellowish red brown 2 fore shanks of the fore legs smaller with a yellow line down the front of them — 3 last annulations of body without yellow marks and having lateral black hairs.

709
June 28
1821

Obtained 4 chocolate colored pupa suspended from the siding of Sintons house front side (Caterpillar supposed to feed on the poplars). length from 1 inch to 1 1/10 on the back it has a double row of spines or 6 on each side / two spine on each side /, and two at the head.

July 12 came out & proved to be the purple butterfly with shy blue spots and yellow marginal band —

papilio clotho in purple in regalia

710
July 1
1821

Vine fretters found great number of these on the wild vine and a few on the Alder. on the flats. those which I suppose the male (for I found none in coitu) are not quite 4/10 long of a black brown color those which I take to be the female are rather more than 4/10 long head thorax & shells of a pale yellow brown the [illegible] and suture & margin of the shells with a dark brown line — the under part of the thorax the fore part of the abdomen dark brown — from the insertion of the hind legs pale yellow brown to the vent — the feelers are or terminate with two leaves or plates — those bended brown towards the head — I believe I have already figured this in my big book — in some of the specimens of those I suppose the female the hinder and under part of the abdomen is of a deeper or rather redder color than in other specimens —

711.
July 1
1821.

Asilus nearly 9/10 long color chesnut dark brown — yellow edge or border back of the eyes — thorax with an oval ring or yellow margin in which there are four small yellow spots with three large yellow spots on each side of the thorax — head & the balancers of a pale gamboge yellow — abdomen glossy or polished dark brown with 7 yellow or buff bands across abdomen with 5 smaller yellow bands — thighs of a paler brown than the body & shanks & tarsi still lighter — prey on insects — wings pale brown with a strong tinge of purple or violet —

712.
July 1
1821

Asilus nearly 8/10 long antennae rather small & delicate back of the head & sides of the thorax villose or hairy & of an ash color — abdomen glossy rather lengthened or long black brown with 5 villose ash colored bands — balancers pale all the thighs black brown — hind shanks & tarsi black brown — middle & fore shanks pale — all the shanks covered with whitish ash colored hairs — found on the heads of unripe rye —

713
July 1 1821 Asilus 7/10 color black brown with a yellow oval margin and 4 yellow small spots — yellow line back of the eyes — a yellow lunule back of the thorax and a bright yellow spot on each side of it — head & balancers pale yellow brown abdomen glossy black brown with 6 pretty broad whitish green bands of an ash color with a slight tinge of yellow green — the sides dark brown — thanks & tarsi pale brown fore claws of the fore feet darker than the rest. wings brown — slightly violet tinge — several yellow spots on each side of thorax antennae pretty rather large for the size — found on the heads of rye — on the flats —

714
July 2 1821 Pupa of Coccinella. the orange colored large coccinella with 8 spots and one at the commencement of the antennae long. Orange colored eyes brown with black brown markings as figured — found attached to a leaf the skin of the larva attached to the at the leaf. —

715
June 26 Libellulae 1.8/10 long 2 inch 6/10 distance between tips of fore wings. each wing with a broad blood brown band across it and a short bar of the same color extending 1/3 an inch from the root of the wing near the outer nerve of the wing head thorax & under side of the abdomen brown — with a small yellow spot on the side of the thorax near the root of the fore leg & another near the root of the hind leg — two small yellow spots at the back of the head — back of the abdomen of a bluish — chalky white — the other sex is supposed to resemble this. I have seen several like this pursuing one another over stagnant pools of stagnant water.

716
June 27 1821 Rose bug long. found on the alder in great number and all in coitu — thorax & shell, approaching to olive yellow terminating the pairs three cleft or heaved — thigh legs & shanks & tarsi red brown — under side of the abdomen convex or swelled — general form of the insect elongated — abdomen shorter than the shells — tarsi 5 — & spined — legs long. — usually found on the rose. the flowers of which it destroys —

717. July 2 1821

Acanthaceae ♀ Trichius? 6 & 1/2 / 10 long wing cases not very dark rather light terra sienna yellow — wing cases yellow brown rather thin & flexible and parted toward the tips — wing cases 2/3 or 3/5 the length of the abdomen — thorax and ~~abdomen~~ shoulders, and back & sides of the abdomen yellow or covered with yellow brown hairs — thighs particularly the hind rather large & flat dark or black brown tarsi 5 & spined. middle & hind shanks gradually thickening towards the tarsi and terminated with 3 large spines or teeth — thighs & shanks with yellow brown hairs antennae terminate 3 leaved. abdomen on the underside brown — found on the purple milk weed hind legs long

718 July 1. 1821

Small black all over black bug 1 3/10 long very numerous on the St Johnswort & small sunflower of the flats all in coitu male & female about of a size

July 10 1821

Libellulae. in coitu this day

one sex 1 8/10 long wings with a dark marginal lengthened spot on the outer edge near the end of each the wings & sides of the abdomen face yellow gamboge, eyes & sides of the thorax greenish (not a clear bright green) upper part of the thorax green and down the back or upper part of the abdomen a green interrupted green line — with broad black markings on the shoulders and on the back of the thorax and very broad and a black line on each side of the abdomen unites over the vent where it is extended on each side and flattened — with a large lateral yellow spot on each side of the two last annulations —

5 719

The other sex has the abdomen much slimmer & the terminating broader the eyes more of a blue green emerald green eyes color of the upper part and sides of the abdomen blueish white green — the three last annulations of the abdomen very broad & flattened — with large gamboge yellow lateral spots length 1 inch & 9/10. —

3 720

Moth
721 July 10 1 inch long burnt umber red cinamon colored — upper wings darker than the lower ones — head & thorax dark red brown upper wings with 4 dark lines across them — length from tip to tip .2 inches & 9/10 — when at rest the wings are deflected and bent round the body —

722 July 10th large black beetle with thick shelly male & female in coitus
long oval.
lays 15 eggs. in a day afterwards each 1/12 long of
10
a yellowish white color.

723 July 12 Pupa of Coccinella red with 10 spots body shape
attached to a board. with the old skin adhering
color dark bister brown with orange markings on the top
of the or back of the abdomen & on the thorax & between the eyes
on the head —

Color to much burnt umber on the drawing —

July 12 1871 Found numbers of the green cicada of the currant, of a beautiful
slightly along
pale yellow, green color with their larva or pupa
Cicada Kibos C. covered with spines — they move slowly but skip
occasionally
or jump to a great distance — I believe I have
already figured this last year —

4/10 long larva or pupa sometimes less —

724
July 15
1821

Locusta? larva? 1/2 inch long — eyes brownish yellow — antennae filiform 1/2 inch long. hind thighs 3/12 inch long. & hind shanks rather more than 3/12 inch long. Color light green — back of the abdomen a shade darker green there is a small black spot or dot at the root of each wing and the abdomen is terminated by a hair like projection on each side — under the mag. glass the thorax abdomen and thighs appear covered with minute black dots —

725
July 15
1821

Locusta? larva? 2 1/2 to 3/10 long say 1/4 inch bright green with a dark bister colored broad line from the head to the rear and a pale or whitish green line on each side of it, as the backline. shanks yellow red brown. eyes pale blue —

726?
July 15
1821

Coccinella — 16 punctata on the shells. thorax and head black with two minute white dots on the head — with two white spots on the base of the thorax and a white lateral margin — shells of a pearly or ashy white with eight brown spots on each. margin of the shells & suture brown lined antennae and leg pale yellow brown, ferruginous under side of thighs abdomen & body black with an orange or yellow margin. this species is remarkably broad across the shells and not so convex as most of the genus — shells smooth — thorax black with white markings.

Cerambyx Ionnatus now in great number on the Milkweed in coitus vermillion red shells both sexes vary much in size. some specimens being 1/3 larger than others — some are not more than half the size of others . . .

July 15
1821.

Cerambyx bicolor. Cist ornatus Cist. with a broad cromic yellow or orange band across the shoulders — all the rest of it is of a violet. or slate blue color. length 9/10 long shells equal width —

July 15
1821
. numerous

Coccinella with yellow shells 4 spots on each shell and the two hind most spots being much the largest one on the suture. — the yellow is different shades from a pale ochre yellow to a deep orange — already figured

one attacks the other moving about.

727 July 15 1821 — found two ~~pupae~~ larvae of Coccinella a large species appeared wet or glossy as if ~~just out of the larva state~~ this species feeds on herbage and moves slow & is totally unfit to subsist therefore on insects — ~~it is of an~~ the head head and abdomen is of an orange yellow. — ~~thorax~~ & legs brown

it is when in motion 4/10 long. drags its unwieldy abdomen slobbily along

728 July 15 — Coccinella. 3 4/10 meark 4/10 long. black or violet black or black green in some specimens. shells orange yellow. with 3 large black brown spots on each elytron — one of the largest species — shells punctured —

mostly of the Coccinellae are fond of harbouring on the purple milk weed. they are generally an active race — running with great celerity ~~they~~ are mostly small insects — of small size several species harbour on the Milkweed —

729 July 15 1821 — Coccinella. Obtained this day 2 specimens one 3 1/2/10 long the other little over 3/10 long — head abdomen & thorax black. shells silvery white or ~~ivory~~ or pearly white — with a black masking down the middle of the back resembly somewhat a fleur de luce and numerous black spots on each side — I think I have already figured this — thighs thorax & tapsi dantiaeal legs pale brown —. 4 feelers. the dottes or marking vary a little in different specimens

730 July 16 1821 — Libellula 2 inches long. face, thorax & part of the body next the thorax bright or yellow green ~~patent~~ green color. — eyes of the male prussian green eyes of the female olive similarly colored & marked male & female. abdomen of the male slimmer. than female — female of nearly uniform breath of abdomen — abdomen of both male & female pale olive with dark brown markings — female resembles male so nearly that it is impossible to figure both

731 July 16 1821 — Leptta. This species is of an ash uniform or cinereous color. about 1/2 inch or 5/10 long. shells of a parallelopipedon or uniform breath. wrapping around the body. is rather a rare species —

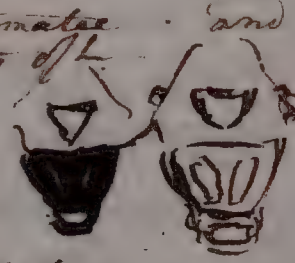
732.
July 16
1821

Asilus ? 8½ or $\frac{9}{10}$. long of a light umber color. with brown markings on the thorax and sides of the abdomen. eyes brown — the last abdominal dark bister brown & annulation tapering to a point

733
July 16
1821

(Hymoptera clef) length $\frac{4\frac{1}{2}}{10}$

the antennae long & black or dark brown with the exception of 5 white ones. the first 8 being dark the next five white & the remainder in length as long as the white being dark — legs & abdomen ferruginous or pale red brown — thorax & head dark brown or black. — 6 white spots on the head two in front or one on each side the rest of the antennae — two small ones behind the stemmatae. and a large spot behind each eye on the thorax each side of the thorax are 4 white spots —



there are several white or greenish white spots on the back sides of the thorax

734
July 18
1821

male

Libellula length $1\frac{2}{10}$. abdomen pale yellow brown with a dark amber or bister triangular lateral spots on each annulation face, jaws, and sides of the thorax pale yellow gamboge — eyes green or pale yellow green with a large brown spot on the upper part of them each eye — upon back of the thorax and back of the first abdominal joint dark gamboge or orange with a small dark yellow or gamboge clouded cloud at the root of each wing — wings delicately veined & the wing spots paler than usual with the genus — found in meadows — the hind wings not emarginate as usual with the male or raw tawny sienna yellow

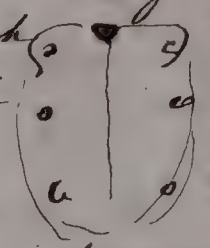
734
July 18
1821

found on flowers —

shells with 4 yellow spots

Leptura. $\frac{6}{10}$ long shells wide at the shoulders taper fast toward the tips — shells pale red brown a yellow streak on each side of the [illegible] and a small yellow spot on each tip — thorax head & antennae & claws bister brown the thorax with a narrow yellow line at the base an one near the neck thorax slightly toothed at the base thorax & abdomen covered with a brush clothed down like plush legs pale red brown —

July 18 1821

Found this day a number several of the large vine fretter with black  & 6 spots on the shells. & 2 on thorax with black legs & abdomen and hairy breast — they always drop into the grass as you approach them they are a powerful strong insect with sharp claws & thorax the shells, & vary in color. in different specimen from a brown flesh color to a pale salmon color —

735

July 18 1821

found on flower in company with 734

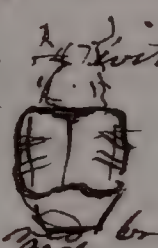
Leptura long to a little over 5/10. shells red brown with 8 yellow spots — head, thorax antennae and abdomen to the insertion of hind legs bister brown — from the hind legs to the vent reddish or red brown — legs paler than 734 thorax & abdomen with bay colored down — abdomen dark brown — propably 734 & 735 are male & female ——

The Leptura generally have a peculiar odor

736

July 18 1821

found & dug deep in flowers —

long. belongs to same genus as the rose bug — head & thorax olive brown shells red brown  with one or two broad furrows — or channels shells short with two tabular pale streaks on each elytron — Shells shorter than the abdomen — legs red brown — breast & abdomen completely covered with white hair or down. — villose or dark colored down

737

July 18 1821.

Larva (—) long pale bluish green with 3 narrow pale yellow bands or rings wide apart one near the vent another near the head & one about the middle with a small yellow tip on the 2nd annulation from the head. head pearl colored — (covered with numerous white dots) with or 1 1/10 long —

July 18 1821

Found this day an Asilus with two white spots or tufts over the vent (already figured) The Asilae are next to the Libellulae the most rapacious of the insect race — they are seldom seen at rest without being in the act of drawing the vital juices from some unfortunate insect often nearly as large as themselves — at such times so intent are they on their prey that they are then easily taken and even then seldom drop their prey. at other times they are extremely vigilant, as an american indian and are not easily taken. prisoners. — as an Iroquois Warrior —

The Libellulae are the very hawks of the insect race rapid in their flight active in their movements active strong bold — when held in the most uneasy position they nevertheless continue to devour their prey — until every part of it disappears devouring with their jaws

738 July 20 1821. Sesia near 1 inch & 2/10 long color purple or violet. shaded with black; eyes brown — abdomen with the 4 abdominal to rings for the thorax of an orange color inferior wings transparent with a broad purple feathery margin

found hovering about flowers — it resembles a purple wasp. on the wing — and is then easily mistaken for one — on handling it the purple flakes of its wings & body come off & these flakes appear under the glass like minute scales but of a brilliant metallic purple ——

739 July 20 1821 Asilus 1 inch & 1/10 long. eyes brown thorax hair brown — back of the abdomen dark or black little brick color. the 3 first abdominal segments from the thorax ash colored at the sides the 4 last segments narrower & slender. it was a female filled with minute eggs like flies blows — the thighs shanks & tarsi with red brown & white hairs & black spines —

found on fences depositing its eggs turning up its abdomen like the tabanus or horsefly.

740 July 22 1821 Rosa Gall fly genus ? This insect is

This insect deposits its eggs in the young branches or twigs of the wild rose the wounded part becoming inflamed swells up & round the eggs and become a large knob at the place about the size of an apricot or large plum. which is in colour resembles being on the underneath of a greenish yellow and on the top of a purplish red over the surface are scattered larger or smaller blue plumb colored spots — the whole surface being covered with the same thorns or prickles which are on the stem of the rose bush On cutting this open about the latter end of July it will be found to contain from 30 to 100 oval cells.

each of which contains a white or pearl colored maggot or larva of 11 or 12? annulations with a very small head & jaws? this maggot is from 1/8 to 2/10 long flattened on the underside and highly convex on the back &c

741 Phalaena

July 25 1871

the female was brought to me this it had been found in coitu in the morning of this day but the male escaped — I do not recollect ever to have seen them in any collection — the male was described to be of the same color as the female but rather smaller

The female is 1 a 2 inches long the abdomen nearly as thick as a persons finger (of a buff color) the wings which had not expanded were of the same buff color with purple brown blotches on the upper & inferior wings. In about 12 hours after coitus it began to lay & in the course of 12 hours more it had layed 199 eggs — of the size of Potato Shot No 3 millet seed. of a pale yellow color of a circular form somewhat flattened — in the course of another day it layed about 50 eggs more — in a two or three days these eggs acquire a pale brown belt around the or Equatorial line a few days.

In about a week the eggs grow darker and in ten days from the eggs being laid the young worm comes forth 4/10 in length with 4 long horns about the head and one over the vent the larva when hatched is at first of a pale red brown color however becomes darker in a few hours & the horns become black —

— for a day or two before the insect is hatched it is distinctly rolled up very plainly seen through the thin transparent colorless shell of the egg.

741

July 26 Larva of Sphinx This is from 2¼ to 2½ inches
long. head bright grass green, with a pale green line on the cheek
the color of it is a pale somewhat yellowish green
with 7 white transverse dashes adjoining this white is a dark
lake red line it has 9 lateral small red spots
and the horn is yellow with a black line on each
side of it ——— the anal feet are pink or red & the
thighs yellow ——— its proper food is not known to
me ——— possibly the apple or cherry as it was found
on the ground between both but it had ceased
feeding when found. It was then seeking a place to bury itself
enter itself ——— this larva was covered with small
white cocoons each 1 1/2 / 10 long raised perpendicularly all over
its sides & back and strongly attached to its body the animals perhaps sirex ichneumons
or some other insects had all made their way out
this worm presented a most grotesque appearance
it appeared by its movements little inconvenienced
by the load of habitations it carried ——— these cocoons
had at the opposite end to which they were attached they
had each a little cap attached by a hinge thread or string
which neatly fits on it ——— This is amply

742 Supposed larva of ~~small unnamed~~ Cicada — error — it is 2 1/2
July 26. long & an oval lengthened form & looks somethg like a
1821. snail attached to a currant color green — feet
and head hid under the tissel —

Aug 1. The above proved to be the pupa of a fly. that
hovers about & is found on flowers it is 3/10 in length — pale or not very
dark gamboge yellow. with brown markings on the back of the
abdomen the underside is slightly concave or flat top of thorax brown — eyes
red brown — thighs pale yellow head large eyes occupy
nearly the width of the wings iridescent —

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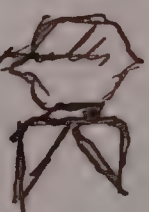
743 Cerambyx or some of its subdivisions
July 26. This insect is 6/10. long & a dull black — shells shelly
1821 punctured like a thimble — upper part of the shells
or shoulders with a ~~triangular~~ pale red spot
~~the thorax~~ head is punctulated or warts — and with a point
about the middle on each side — eyes large. ~~and~~
the antennae nearly twice the length of the insect
joints and inserted in the eyes near the front
legs rather long. .. abdomen shorter than the shells —
makes a querulous noise on being handled —



744 supposed male of one already figured before
July 26 which was a female with yellow superior & vermilion red
1821. under wings. with black similar marks but the
antennae are too slender to denote a male — The one
here figured is 1 8/10 between the tips and near 8/10 long
the superior wings above & below are white with
black streaks and spots above & below. ~~with a red~~
the rib of the superior wing red beneath —
the inferior wings flesh colored — with black spots
above & below. — thorax & abdomen pale flesh white
with 5 abdominal rows of black spots
found in the grass ——— the front of the
thighs is vermillion colored ———

July 27 The larva of Sphinx Linnaea which is generally found on
1821 privet or scrub. eats also the vine leaf although
I believe the is its proper & favorite food —

July 27 1821

The Black Dytiscus about 5 or 6/10 ling found in stagnant pools or ponds or still water are now seen in great numbers — 40. 50 sometimes a party of 100 are seen moving about in the sprightliest manner of the graceful dance — a part of them are seen going down the middle returning again on the outside then sporting through one another without ever a single one coming in contact with another — no jealousies no quarrels at the first dropped — no awkward country squire is here intended to jostling the fashionable affords are seen no apologies are necessary — no duel take place all appear full of life & enjoyment unalloyed to add to the sprightly scene that lively chirps the grille — heard up this Here and there at a distance appear a solitary skater amusing himself with fantastic movements — or practising like a novice the latest steps imported from the Capital Paris —

Their glossy black dress which shines like polished jet simulating spangled silver on the side next the sun, adds much to the life of the scene — on the appearance of any formidable intruder the whole party scamper off together occasioning however little interruption to the dance which is immediately restored at no great distance —

July 27 1821

Larva of Sphinx — These vary in color — of two specimens found this day one of them 2 3/4 inches long was of a pale blue green with pale yellow transverse dark lines shaped lateral line on the side next the head (bordered) by a black line — a black line on each side of the head ranging from the top of the head down to the jaw. adjoining this and parallel to it was a pale white green line — the thighs next the feet tip with pale green white — legs black — the false legs which are yellow all the feet have black spots on each foot — the horn is a deep sky blue partially covered with black glossy dots, is rather long slender, and curved over the vent — The other specimen which was from 3 inches to 3 1/2 when in motion and 1 and 3 from the one above is being of a full bright yellow green color. the gashes were of a full grass green color and the black line had a strong bluish tint on both sides of the head. real feet, suppitors & horn as in the one above They feed on the Blackberry & Lilack on different bushes of which they were each found suspended in a sort of lifeless state owing I presume to the state of the atmosphere which was very heavy (nearly so.) cloudy damp & hot —

over the vent in both it was covered with minute dark dots

746
July 28
1821

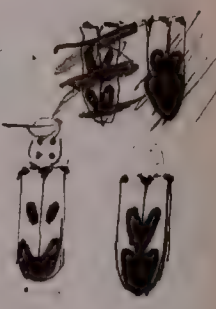
Larva. Sassafras This insect is when full grown
long. of a velvet yellow or Verdigreen green on the upper part or
back. with a black line at the back of the first
annulation from the head — on the 3d are two large eye
like spots compose of an oblong black glossy spot on
a dun or buff ground. ~~the whole~~ inclosed in a black
ring — on the 4 annulations are two large dun spots.
approaching each other — the rest of the body has
on each side 3 rows of sky blue small spots —
a large yellow lateral band passes from the head
to the rear — the under side as well
as the head feet & supporters is of a pale purple
brown ——

It lives & feeds on the Sassafras Laurus Sassafras
& generally forms a sort of habitation in one of
the leaves by bringing the extremities of the sides
together with a few silken threads — in one
of these it finally spins its double webbe. or
one case in another extremely strong connected together
& passes into the chrysalis state ——
I have never met with it on any other tree
than the Sassafras — ——

The fine green of this larva changes to a dull yellow
just before the worm spins & changes to the pupa state

747 Cerambyx or some of its subdivisions —
July 30 Belongs to same genus as 743 — Its length is not
quite $\frac{6}{10}$ $\frac{5}{10}$ is of a smoky black — with with a
band across the shoulders —
broad dull rather light yellow. the antennae extend a little beyond the tips.
The shells are cut out at the tips thorax & shells punctured
shell even width —

July 30 Found this day 2 varieties of Cerambyx Linnaeus
1821 they are 1/3 smaller than the common —
4/10 long — both —



July 31 Larva of. Large Wild like worm brought to me
is a verdigrease green darker at the sides
and underpart —

1821
Aug 1 Larva of Hemirobius Lineatus brought me this day
was found in tilting out a raft of Boards — As this
is past the period when the fly annually makes its
appearance which is in the months of
748 it is probable that the larva are more
than one year in that state — This specimen was
3 inches in length — the head furnished with jaws
on the outer side of each jaw and between it and the eye
are situated rather delicate short antennae — the head thorax
and two first joints next the thorax have
a horny covering of a dark hair brown color. which have an
appearance of an embroidered appearance each of the feet are 9 more
abdominal segments or rings each of which have on each side
a hairy fin like appendage — the last joint terminates in
two processes each of which has two claws or hooks at
the end — the first 7 of these abdominal segments have
on each side beneath the fins a hairy tuft formed
like a circular brush. which are constantly in motion
and are presumed to be the organs of respiration
or to cover them —
by means of the body at the end the animal

it is enabled
to move backwards as occasion requires
This specimen was 3½ inches in length —

This caterpillar is sluggish in its movements
of a green or rather brown green with a tinge of red:

7506 Larva of Phalaena
1821 found near the root of a white oak tree
Sep 18 when full grown 3 3/4 inches long. color green or brownish green with 8 lateral
oval spots pale yellow or whitish spot in dark blue rings.
the head is a dark cane colored yellow with a dark brown stripe at the middle and the second
and third annulation from the head have each 4 erect pale cane colored horny
the sides of the head are green — there are
4 rows of pale green minute tits down the back —
there are numerous minute pale blister like tits on the under
side of the abdomen and about the false feet —
when very hungry it eat the filbert leaf but with
great reluctance it proper food is unknown to me
it is covered with whitish hairs of irregular length —
Sep 22 feeds on the oak (black oak) found several on this day and one spinning in

over the vent is a triangular area colored with a black spot and on each side of the vent one

1821 The black yellow spotted willow worm are now in great
Aug 1 numbers of all sizes on the weeping — wild &
other species of Salix — some of them went this day
into the pupa state — when not feeding or at rest
they generally have the body or head thrown back over the
vent resting only on the false feet or supporters —
Aug 16 or like a fish hook ——
came out of the pupa the fly — see 750 —

Aug 3 Galeruca 12 punctata 3½/10 head small & black
1821 thorax small pale green colored shells yellow not
large enough to cover the abdomen & shorter than abdomen (spot
abdomen pale green — shells marked with 3 rows of black
across abdomen large & swelled —
at the end. Galerucia 12 punctata is found throughout the
summer season — from until October
(Sep 18 1821

1821
Aug 5 Heard to day several cicada pini —

Aug 5
7449 Hemerobius 1 inch long — from tip to tip 2 inches 4/10
pectinicornis 3½/10 long eyes prominent — wings in a position
when at rest like the roof of a house — numerous parallel
nerves from the broad costal rib — spotted hair brown
abdomen with a broad pale band — eyes brilliant or polished
and of a bronzen color — back of the head and thorax
dark hair brown —

Aug 3 Pupa of Sphinx Lineata slender dy yellow brown without probocis — pupa of Sphinx No. dark red lake brown

Aug 12 The Sphinx Lineata now begins to be seen about flowers in the evening —

Aug 12 Larva of the Wild Silk worm now went into the Pupa State — this one had the first 4 crowns from the head of a red color

1821
Aug 15 Tenthredo Salix or Salicis in number in coitu on the weeping willow — and wild willow the male is not more than ~~2/3 half~~ the size of the female — the male is
750 3/10 long. of a brown color. with a pale ferruginous belt across the back of the abdomen. the antennae half the length of the insect — long joint and two short ones next the head — under neath the abdomen is pale ferruginous brown red legs pale ferruginous

The female is 4/10 long or rather more and the body which is twice as thick as the male. is pale bright green ~~ook~~ sky blue under the abdomen, on the thorax at the root of the wings and part of the legs. — wings of both male and female rather longer than the abdomen.
wings of both slightly iridescent
a second brood made their appearance

Aug 15
751 Phalaena 1 3/4 inch long near 3 3/4 from tip to tip —
superior wings grey brown with fortification lines —
inferior wings crimson with 2 black broad semicircular bands — back of the abdomen grey brown pale beneath eyes black brown comparatively small — antennae half the length of the insect and like a thread —
feet with whitish rings round them inferior
under side of the superior wings dark with two semicircular flesh colored broad bands on all the wings — inferior as well as superior — abdomen taping like the body of a Sphinx —

and or to ty

752 (1821 Aug 16) Sesia. 4/10 long thorax brown with 2 gilt line abdomen purple violet — with 2 gilt or golden zones or belts tail forked and tipt with gold legs ~~golden~~ and sides of the thorax golden — wings iridescent — an elegant species — The sesiae are all very brilliant in their coloring —

753 Aug 17 Cicada long found on the willow
Color pale brown with a yellow blaze along the head and thorax dark spotted about the head —

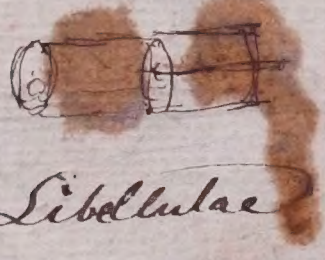
Aug 16 The Katy did is now heard nightly or every evening from the same spot —

1821 Aug 22 754 Sitta marginata? near 5/10 long. Head pale ochre brown eyes ~~black~~ dark brown ~~black~~; thorax with 2 dark brown lines dull ochre yellow with 2 broad black brown lines down each — under side of the abdomen dark cinereous — rather rare species.

The character of the Sytta genus the head bent down from the head square & bent down abdomen rounded swelles and enlarges towards the vent shells shorter than the abdomen tongue slender & small next the head and enlarging towards the shell — integrae about ⅔ the length of the abdomen — shells wrapping down the side
Sitta cinerea rather rare species —

753 Aug 23 Larva of Phalaena Cornuti This varies wonderfully in size according to the plant it feeds on On the Lima beans & some other plants it acquires the size of 3 inches ~~long~~ it often acquires on other plants but 2 inches at the times it spins in its cocoon. the under side is of a darker color than above — a lateral band of ochre red & white between which & the feet there is a notched red spot on each annulation

Habitat in sylvis Virginiae Carolinae
— a Canada ad Virginiam —



great flight of Libellulae
see Union —

effect of noise of the Katy-did
see Mr Wells travels in Genesee
Village. Record.